FORMER NAVSTA/NSY PHILADELPHIA PFAS PRELIMINARY ASSESSMENT FOR TRANSFERRED PARCELS/AREAS
PADEP AND EPA REVIEW COMMENTS ON THE NOVEMBER 2021 DRAFT REPORT
APRIL 2022

Reviewer: PADEP (Sarah Pantelidou)

Document: Draft Preliminary Assessment Documenting Potential Sources of Per- and Polyfluoroalkyl Substances, Transferred Parcels, Former Navy Station/Navy Shipyard, Philadelphia, Pennsylvania, November 2021

Submission Date: 01-Nov-22

Comment Date: 16-Feb-22

Comment Number	Worksheet, Section, or Figure #	Comment	Response to Comment
GENERAL COMMENTS			
1a	na	Additional Areas of Concern may be found by obtaining Navy Fire Department incident reports, training dates and training locations.	As part of the 2021 PA for the retained parcels/areas and this PA for transferred parcels/areas, the active facility fire chief was interviewed and provided a questionnaire to complete (see Appendix D). Incident records were requested but not provided. As noted in the completed questionnaire, firefighting training was conducted at IR Site 13 which was the subject of a site inspection in 2019 (Final Per- and Polyfluoroalkyl Substances Groundwater Preliminary Assessment/Site Inspection Site 13-Former Fire Training Unit former NAVSTA Philadelphia, September 2020). A remedial investigation is planned for this area in 2022/2023. On occasion, some fire fighting training might have occurred on ships when in port. No detailed records were available regarding training.
1b	na	Additional Areas of Concern may be found by including areas where fire suppression infrastructure is, or was, installed or tested.	The PFAS PA process included records search and interview questions about fire suppression infrastructure. Other areas where AFFF fire suppression systems were utilized were identified by the current fire chief (Appendix D Completed Questionnaires). The Pier 7 Foam Pump House, Building 779 Tank Farm and Building 1082 were included in the 2021 PA for the retained areas and are not part of the scope for this PA.
2	na	What is the plan for assessing the border line between transferred and retained areas? For example, Navy Fire Dept. Blg. 56 and its rear parking area could both be locations where material was used, but are now in separate areas (transferred vs retained).	As needed, the Navy plans to request sampling access from current owners of transferred parcels/areas in order to fully delineate the horizontal and vertical extent of PFAS impacted media at areas proposed for further evaluation/investigation.
3	na	EPA has additional comments based on their review.	No response needed.

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Reviewer: USEPA (Lori Baker)

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HYDROGEOLOGIST COMMENTS			
1	Section 3.2.4, Online Source Review, page 3-4	Has the Navy gone back and reviewed the weekly base newspaper called the "Beacon". I recall a fire in several of the compartments near the Machine Shop onboard the USS Independence during the 1986-1987 timeframe. The damage was severe in those compartments. I saw the areas that were affected. I also read about it in the Beacon. The point is that not all fires were documented.	Comment about not all fires being documented is noted. However, the interview process as part of the PA is meant to capture even anecdotal, rather than just documented historical, information. With regard to the search for documented information on AFFF use or fire history, as part of the PA for transferred properties, numerous reports contained in the Navy's environmental reporting database (NIRIS) and other public databases were accessed and reviewed. No information regarding a fire on board the USS Independence Machine Shop while in port at NSY Philadelphia was found in the reviewed documents. Section 3.2.4 discusses fire incidents that were identified using a number of online sources. The Building 18 Machine Shop was included in the review of sites for this PA.
2	Section 4.1, Further PFAS Evaluation Recommended for specified Buildings/Areas, pages 4-1 to 4-7	EPA agrees with the inclusion of the following areas: a.Outdoor Area at Building 46 – Former Officers' Club b.AOC-F – Building 41 (Electroplating Shop Spill Area) c.(SWMU) C-85 – Chrome Plating Waste Accumulation Area Outside of Building 16 d.IR Site 13 – Fire Fighting Training Area and Associated Areas i.SWMU C-17 – Fire Fighting School -A ii.SWMU C-18 – Fire Fighting School – B iii.SWMU C-19 – Fire Fighting School – C iv.SWMU O-3 - Fire Fighting School Oil/water Separator	As noted, these areas will be evaluated as part of planned site inspection (SI) and/or remedial investigation (RI) in 2022-2023.
3	Section 4.2, No Further PFAS Evaluation Needed, pages 4-9 to 4-12, refers to Table 4-2	Potential PFAS Area Recommendations, No Further Evaluation pages 1 of 9 through 9 of 9, mentions in the "Site Background" column, the EBS states that interim corrective actions were to be undertaken to prevent environmental degradation or contaminant migration, listed for the following Potential PFAS Areas: C-73, C-74, C-75, C-75, C-76, C-79, C-81 and C-82. Was there any follow up to determine if the corrective actions took place?	Per the 1999 BRAC Cleanup Plan (EA, 1999), the following information will be added to Table 4-2: *C-73 Surficial cleaning completed; no further action (RCRA). C-74 Surficial cleaning completed; no further action (RCRA). C-75 No further action (RCRA). C-76 Surficial cleaning completed; no further action (RCRA). C-79 Surficial cleaning completed; no further action (RCRA). C-81 Surficial Cleaning completed; no further action (RCRA). C-82 Surficial cleaning completed; no further action (RCRA).*

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TOXICOLOGIST GENERAL COMMENTS			
1	na	I continue to have concerns that using records and interviews as primary sources of information in determining which sites will or will not be included in additional investigations will lead to potential PFAS contamination being missed in the Preliminary Assessment (PA) phase. Based on previous environmental cleanup work at other federal facilities/DOD sites it has been my experience that accurate record keeping can be sporadic and decision making based on interviews with employees who worked at a facility year to many decades before often leads to inadequate or incomplete decision making in determining if a site did or did not have previous PFAS-related operations.	Comment noted. However, a through evaluation has been conducted with the available information on potential use/release of AFFF and other PFAS-containing materials on the former NAVSTA/NSY Philadelphia transferred properties. Numerous reports contained in the Navy's environmental reporting database (NIRIS) and other public databases were accessed and reviewed. As part of the 2021 PA for retained properties, key individuals were interviewed. A follow up questionnaire was submitted to these individuals as part of the PA for transferred properties. It should be noted that the transferred properties are no longer part of an active base and were transferred to the City of Philadelphia under agreement with EPA and PADEP in the late 1990s.
2	na	There is little or no discussion regarding sampling the Delaware River (surface water and sediment) for PFAS. This is of concern since the author on numerous occasions in the document indicates that groundwater flow, as well as overland flow and sewer discharges, are to the river. This requires further discussion.	The Navy is not recommending areas within the Delaware River for further PFAS assessment at this time. If the SI results indicate that a release from a potential PFAS source area is confirmed and the conceptual site model shows a migration pathway for possible impact to a surface water body, then investigation of the surface water body would be part of a Remedial Investigation.
TOXICOLOGIST SPECIFIC COMMENTS			
1	Executive Summary – Bullet 2	It is recommended that if evidence of a release at areas that have been eliminated based on a lack of evidence for the presence of PFAS EPA be immediately notified so that an appropriate assessment can be initiated.	Understood.
2	Section 1.2.2.1 – AFFF in Firefighting Training and Fire Suppression	It is not clear how it can be definitively stated that there was no crossover use of PFAS-AFFF foams when fighting fires where Class A firefighting foams were typically used. Please clarify.	Section 1.2.2.1 is a general discussion regarding the use of Class B AFFF-containing as it pertains to fire-fighting. *The sentence regarding the general use of Class A foams which are used for wood, paper and brush fires has been deleted.*
3	Section 1.2.2.2 – Electroplating	While I understand that electroplating facilities will be investigated for PFAS compounds and this question is not directly related to this PA, indicate if the electroplating facilities were investigated for the presence of hexavalent chromium in soil, groundwater, surface water and sediment. Additionally, indicate if other plating operations including nickel, cadmium, lead, and zinc were operated at PNSY as PFAS has been implicated in these plating processes as well.	Section 1.2.2.2 is a general discussion regarding metal plating, and specifically chromium plating, and the potential for historical use of PFAS as part of chromium plating operations. At the former NAVSTA/NSY Philadelphia, chromium plating was conducted at Building 41 (AOC-F). Section 4.1.2 presents a summary of the operational history at Building 41 and basis for further evaluation based on potential use of PFAS containing mist suppressants. As outlined in the 1999 BRAC Cleanup Plan, investigation and cleanup of AOC-F was conducted by the Navy under RCRA as part of the facility closure activities. Chromium, zinc, cadmium, nickel, silver, nitric acid, and hydrochloric acid were identified for AOC-F (EA, 1999)
4	Section 1.2.2.4 – Other Potential Sources – Former Chevron Refinery	Indicate if the Philadelphia Fire Department has been contacted to provide records of the type(s) of foam used in the Chevron Refinery Fire.	The Philadelphia Fire Department was not contacted regarding the 2019 fire. The Navy is planning on additional investigation of IR Site 13 groundwater that will include characterization of upgradient groundwater quality as it relates to Site 13.

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5	Section 1.4.1 – DON Policy Memo, Oct. 21, 2014	It should be stated that no action was required based on HH because water was supplied from public sources. It is not yet clear whether other impacts to HH such as exposure through fish consumption or impacts to the environment and ecological resources have occurred.	The following sentence has been revised: *"Within both the Navy retained and transferred parcels of the former NAVSTA/NSY Philadelphia, no action was required based on human health impacts because potable water is supplied from public sources and no active on-property drinking water wells exist."*
6	Section 1.4.5 – DASN (E) Policy Memo, June 20, 2016	It is not clear how a 1-mile downgradient distance was determined. Please clarify. Also, indicate when the last drinking water well survey was performed.	The 1-mile downgradient distance is typically measured from a known or suspected PFAS release area to a distance of 1 mile in the direction of groundwater flow. At the PA stage of the PFAS evaluation of the former NAVSTA/NSY Philadelphia transferred properties, an area 1 mile around the boundary of the transferred properties was conservatively assessed for potential drinking water receptors (Figure 3-1).
7	Section 1.5.7 – ASD Guidance Memorandum, Nov. 22, 2019	Indicate how these analytical methods compare to EPA analytical methods for PFAS compounds.	The QSM Table B-15 compliant methods employ Liquid Chromatography and Tandem Mass Spectrometry (LC-MS/MS) and sample concentrations are determined by isotope dilution or internal standard quantification similar to Draft Method 1633 for PFAS in matrices other than drinking water.
8	Section 2.1.1 – Land Use – Bullet 1	Indicate how groundwater withdrawn from wells in the PNB or Capehart Housing Area can be used.	The 1998 Decision Document prohibits potable use of groundwater within the former NAVSTA/NSY Philadelphia and within the current PNYA Philadelphia. There are no restrictions of using groundwater for industrial purposes. However, if an entity (including the Navy or third party) was to withdraw groundwater for industrial purposes, it would still have to go through the appropriate approval process of PADEP and the Delaware River Basin Commission.
9	Section 2.1.4.1 – Phila. Naval Reserve Basin Dredging	Indicate if the dredged material was analyzed for contamination prior to disposal at the Fort Mifflin CDF.	IR Site 8 Reserve Basin is not included in the transferred properties of the former NAVSTA/NSY Philadelphia and therefore is not included in the scope of this PA. Information on Reserve Basin sediments was provided in the 2021 PA for retained properties.
10	Section 2.1.4.2 – Delaware River Main Channel Deepening	Indicate if the dredged material was analyzed for contamination prior to disposal at the Federal CDFs.	IR Site 8 Reserve Basin is not included in the transferred properties of the former NAVSTA/NSY Philadelphia and therefore is not included in the scope of this PA. Information on Reserve Basin sediments was provided in the 2021 PA for retained properties.
11	Section 2.1.5 – Groundwater Use	Indicate if non potable uses of groundwater are permitted. Also, indicate if the NAVSTA/NSY supply wells are still available for use or if they have been decommissioned. Lastly, are there nondomestic use water supply wells located within 1 to 3 miles downgradient?	The 1998 Decision Document prohibits potable use of groundwater within the former NAVSTA/NSY Philadelphia and within the current PNYA Philadelphia. There are no restrictions of using groundwater for industrial purposes. However, if an entity (including the Navy or third party) was to withdraw groundwater for industrial purposes, it would still have to go through the appropriate approval process of PADEP and the Delaware River Basin Commission. As noted in Section 2.1.5, wells completed in the Raritan Formation originally supplied water to the Philadelphia Naval Complex until the 1960s (EA, 1999a). Per the 1999 Closeout-BRAC Cleanup Plan, the deep wells were abandoned during the 1960s due to declining water quality from iron, manganese, chloride, sulfate, and total dissolved solids in the lower sand unit in the Philadelphia region. Pumping was stopped, and the Philadelphia Naval Complex was converted to municipal water supplies (EA, 1999b). No other detailed information from the 1960s abandonment, pumping stoppage and change over to municipal use was provided. As noted above, at the PA stage of the PFAS evaluation of the former NAVSTA/NSY Philadelphia transferred properties, an area 1 mile around the boundary of the transferred properties was conservatively assessed for potential drinking water receptors (Figure 3-1). A search for nondomestic supply wells beyond 1-mile was not conducted.

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12	Section 3.0 Assessment Methodology – Bullet 3 – Interviews	It is not clear if current and particularly former base workers are familiar with PFAS and whether it is/was known to be a constituent of AFFF. See General Comments.	For purposes of the interviews, it was assumed that the AFFF used by the Navy contained PFAS. No further details regarding AFFF constituents were provided, as the intent of the interviews/questions was to find out as much information as possible regarding historical and current use of AFFF foams and foam using equipment. During the 2021 retained areas PA site walk, AFFF materials present at the retained areas were PFAS-containing.
13	Section 3.2.3 – PA Groundwater Information System	Indicate if additional information on the "industrial" wells and their uses can be obtained. Also, additional information on the "other" listed wells and their uses is required. If 12 of the 16 "other" wells are used for monitoring purposes indicate if the analytical results can be obtained, or at least analytical data for PFAS if they are included as part of their chemical analyses. Lastly, does the EPA hydrogeologist agree with the statement that PFAS impacted groundwater is not expected to flow in the direction of these wells.	Individual DCNR Water Well Information Reports for the 31 'withdrawal' wells were reviewed. Regarding the three wells noted as 'industrial' water use, one was installed in 1942 (Publicker Industries) and two were installed in 1946 (Gulf Oil). No other information on the use of water was provided on the well record. As noted in Section 3.2.3, 16 'withdrawal' wells had 'other' listed as their designated water use. The PAGWIS system where the well information was pulled from has a water use/use of water category for 'domestic' and since it was not used for the withdrawal well water use, but 'other' was used instead, it was concluded that the wells' water use was not domestic. No other information was supplied on the well records for these wells. Twelve withdrawal wells had 'monitoring' as their designated water use. Information on monitoring use, frequency and parameters was not provided in the individual well records and is beyond the scope of this PA. As per EPA (Email dated 2/3/22), neither the shallow nor deep groundwater are considered drinking water sources at the former NAVSTA/NSY Philadelphia. A Base-Wide Institutional Control prohibiting groundwater withdrawal for human consumption was enacted in the 1998 Decision Document.
14	Section 3.2.4 – Online Source Review	It is not clear when the USS Kitty Hawk fire occurred. Please clarify. It should be assumed until data show otherwise that PFAS-AFFF was used to fight the fires that occurred onboard the USS Kitty Hawk, USS Saratoga, and the USS Constellation.	Review of online sources indicated fires occurred on board the USS Kitty Hawk in 1991 (Esmeraldas, Ecuador), 1987 (Masirah Island, Oman), 1973 (Philippines), and 1965 (Vietnam). The ship was reportedly in port in Philadelphia for overhaul from July 1987 to August 1990. Section 3.2.2 has been revised as no fire was reported/documented while the ship was in port in Philadelphia in the late 1980s; the documented fire incidents occurred prior to the ship arriving at Former NAVSTA/NSY Philadelphia or after. Revised text: *As part of the interviews/questionnaires conducted for the retained and transferred PAs, a fire on the USS Kitty Hawk was mentioned; however, no fires were documented in any online sources while the ship was moored at NAVSTA/NSY Philadelphia from July 1987 to August 1990. A March 1987 fire was documented on the USS Kitty Hawk while the ship was at sea.*
15	Section 4.1.1.4 – Potential Receptor Characterization (Bldg 46 – Officer's Club)	Confirm with the EPA hydrogeologist regarding expected groundwater flow direction. It is not known at this point if groundwater to surface water discharge is occurring so while there may be no potential human receptors it is not clear if ecological receptors are being impacted by PFAS contamination.	As per EPA (Email dated 2/3/22), there was a shallow groundwater study, around 2000, conducted during the EBS program prior to transferring the property to the City of Philadelphia. The study showed that the groundwater discharges to the Delaware River, Schuylkill River and Naval Reserve Basin.
16	Section 4.1.2.1 Description and Operational History (AOC-F – Bldg 41 (EP Spill Area)	This site is immediately adjacent to the Delaware River. It is not clear why sediment sampling is not being considered. Additionally, species that may be consumed by humans will need to be considered as well.	The Navy is not recommending areas within the Delaware River for further PFAS assessment at this time. If the SI results indicate that a release from a potential PFAS source area is confirmed and the conceptual site models shows a migration pathway for possible impact to Delaware River sediment, then further investigation of sediments would be part of a Remedial Investigation. Second comment noted.

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17	Section 4.1.3 – SWMU C-85 Bldg 16	It is not clear why only the Waste Accumulation Area is being proposed for investigation. As building 16 was a chrome plating facility it seems that this building and surrounding area should be considered for investigation. Please clarify.	If PFAS containing materials were used in the chrome plating facility, investigation of the area where operations wastes were managed should yield results regarding the presence or absence of PFAS. Further investigation of additional areas within Building 16 will be based on the planned SI sampling results.
18	Section 4.1.3.2 – Basis for Recommending Further Assessment	While I agree with the recommendation it is not clear why Building 16 is not being recommended for additional PFAS assessment.	If PFAS containing materials were used in the chrome plating facility, investigation of the area where operations wastes were managed should yield results regarding the presence or absence of PFAS. Further investigation of additional areas within Building 16 will be based on results from the planned SI sampling.
19	Section 4.1.3.4 – Potential Receptors of Concern	See Specific Comments 17 and 18. Also, if contaminated discharge migrated to groundwater there could be groundwater discharge to river sediment resulting in contaminated sediment. Lastly, species that could be consumed be people need to be included as well.	Groundwater will be investigated as part of the Building 16 Waste Accumulation Area SI. If the results confirm release from a potential PFAS source area and a migration pathway determines there may be an impact to Delaware River sediment, then further investigation of sediments would be part of a Remedial Investigation.
20	Section 4.1.4.4 – Potential Migration Pathways (IR Site 13 FFTA and Assoc. Areas)	An appropriately placed well network will be needed to determine if "materials used during recent offsite petroleum firefighting events" may have contributed to PFAS contamination detected in Site 13 groundwater. Also see Specific Comment 4.	Understood. The Navy plans to prepare a formal work plan for further investigation of Site 13.
21	Section 4.1.4.5 – Potential Receptor Characterization	In this section and throughout this document the author states that surface water releases to the Delaware River would dissipate quickly. It is not clear what evidence backs this up and whether particulate bound PFAS would settle out to the sediment and potentially accumulate. Please clarify.	The word *'quickly'* has been removed from the sentence and at other locations, as needed.
22	Table 4-2: Potential PFAS Areas Recommendations – No Further Evaluation	Many of the No Further Evaluation Areas included pier, wharves, dry docks, etc., where AFFF was reportedly handled. The rationale/justification for no further action is that a release to the Delaware River would have been diluted and washed away due to the current. As indicated in above previous comments evidence is needed to show this, as it is not clear if dissolution in surface water would be absolute before settling to sediment could have occurred. Also, see General Comments and Specific Comments on records and interviews.	The Navy is not recommending areas within the Delaware River for further PFAS assessment at this time. If the SI results indicate that a release from a potential PFAS source area is confirmed and the conceptual site model shows a migration pathway for possible impact to a surface water body, then investigation of surface water would be part of a Remedial Investigation.